TRI-BASIN TOPICS

Fall 2003 Volume 17, Issue 3

"Dedicated to the Conservation of our Natural Resources"

Soil Sampling Saves Money

—Rod DeBuhr, Upper Big Blue Natural Resources District Water Department Manager

Are you spending more than you should on fertilizer for your crops? Let us help you determine exactly how much fertilizer you need to help minimize crop input costs.

The University of Nebraska-Lincoln has developed a formula to determine the amount of nitrogen fertilizer that a corn crop needs. The word "formula" makes it sound complicated, but if you use the following step-by-step approach, it's really pretty easy to figure out how much nitrogen you need to apply for an optimum crop.

Step 1—Proper Soil Sampling

Without good information about nitrogen in your soil, figuring out the nitrogen needed by your corn crop is just a guess. A guess is **NOT** what you want. If you grow continuous corn, in order to get accurate information about the residual (also called carry-over) nitrogen in soil, you must sample soil every year. Research and demonstration projects have proven that residual nitrate-nitrogen can vary greatly from one year to the next. You have already paid for it, why not use it? The following are **minimum** acceptable soil sampling procedures according to the University of Nebraska-Lincoln NebGuide G91-1000-A-*Guidelines for Soil Sampling.*

* **Collect one sample for each 40 acres.** The average nutrient status can be determined with acceptable accuracy; however, a less than ideal measurement of field variability is obtained.
* **Determine cores per sample.** Reasonably accurate measurement of the average nutrient status can be obtained with 10-15 cores taken from a field area of 40 acres. More variation in mean values from year to year is expected when areas larger than 20 acres are included in a sample, unless more cores are taken.

For gravity irrigated fields, four to five cores per 20 acres will generally give more accurate estimates of soil nitrate-nitrogen than will six to eight cores per 40 acres, provided the field is divided into upper, middle, and lower portions.

* ***Division of cores by depth.*** The surface sample is from 0-8 inches and the subsurface sample goes from 8-36 inches.

This division of each sample will allow testing of surface samples for all nutrients and subsurface samples for nitrate-nitrogen. If the sample is not divided by depth, then only the nitrate-nitrogen test should be run.

A sample representing soil from the surface to three feet deep is acceptable for a nitrate-nitrogen test; however, this procedure has severe limitations. It is difficult to obtain a representative sample when using this approach. Variations in soil moisture content and soil density by depth may result in collecting different amounts of soil from different depths. This will bias the test results.

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Managers Message

By: John Thorburn

WATER THIEVES ON THE PLATTE

Evidence of the on-going drought is all around us. Reservoirs are reaching record low levels. Dryland crops are dying. Groundwater levels are dropping. Rivers and streams are drying up. Motorcycles, not motorboats run up and down the Platte River.

The drought has allies that help it turn our streams into sandbanks. These hidden collaborators steal water from farmers, wildlife and city taps alike. The alien invaders incessantly suck water right out of our streams. Our only response to this menace must be to kill them all!

These water thieves are invasive plants. North America is under seige by a wide variety of exotic plants and animals, from African mustard to zebra mussels. In the Platte River system, three species of plants (a grass, a flower and a tree) are of greatest concern. They are phragmites grass, purple loosestrife and saltcedar. All three of these plants are alien imports from other parts of the world. They were all brought into the country by people with good intentions, who didn't realize that they were unleashing ecological plagues onto the landscape.

Phragmites

Phragmites Australis (common reed) is an ornamental grass that can grow 20 feet tall. It is widespread in Europe. The European genotype has spread aggressively across the U.S. over the last century, taking over riparian areas (river banks and side channels) and wetlands. It grows in dense stands, crowding and shading out native plants. Phragmites grows so thick that it can choke off river channels and cause flooding by trapping sediments. Flooding problems along the North Platte River last summer were at least partially due to phragmites clogging river channels. By the way, if you think that your lawn uses a lot of water, consider how much water is consumed by grass as tall as a two-story house.

Purple loosestrife is native to southern Europe and Asia. It was brought into the U.S. as an ornamental plant. Loosestrife, known to many gardeners as *lithrum,* is a pretty plant with showy, long-lasting purple flowers. In spite of being designated as a noxious weed by the Nebraska Department of Agriculture, this perennial plant is still present in many gardens. It has spread widely and now grows along much of the Platte system.

Purple Loosestrife

What's the harm in a pretty purple flower, you may ask? Like *phragmites,* it favors wetlands and riparian areas, crowds out native plants and transforms these ecologically sensitive areas into green deserts that provide no food or habitat for birds or mammals. Dense mature stands of purple loosestrife consume far more water than the native grasses that they replace.

Purple loosestrife consumes a lot of water, but it isn't as insatiably thirsty as saltcedar *(tamarisk).* A single saltcedar tree, which is only 12-15 feet tall when mature, consumes as much as 200 gallons of water a day. Established stands in Texas have been shown to use nearly eight acre-feet of water per acre per year, 27 times more water than the native vegetation they displace.

Saltcedar is just starting to rear its ugly head on the Platte, but it is widely dispersed and deeply despised in other parts of the west. Once established, it grows in dense thickets, crowding out native species and sterilizing soil by excreting salt. Its deep taproots readily reach groundwater and can dry up natural springs. It spreads quickly by both seed and rhizomes (runner roots).

Salt Cedar

Purple loosestrife and phragmites are so widespread that it is unlikely we can ever eradicate them. We still have a chance, however, to wipe out saltcedar. Private landowners along the Platte need to be aware of this plant and check their property for its presence. If you find it on your property, call the NRD office or your local weed control authority to

Director Profile

David Olsen, Tri-Basin NRD Director

David Olsen currently serves as Secretary on the Tri-Basin NRD Board of Directors. He is the district's at-large representative. David lives near Axtell and has two children. He is a graduate of Minden High School and attended the University of Nebraska at Lincoln. David is a member of the First United Methodist Church in Minden. He also serves on the Kearney County Fair Board.

Marcia Trompke explains subsurface drip irrigation.

Jack Lindstrom Windbreak

Tri-Basin NRD Annual Tour

The Tri-Basin NRD Board of Directors, NRD staff, Tri-Basin NRCS staff, Holdrege DEQ staff, and local news reporters toured current projects in Phelps and Kearney counties on August 12, 2003.

The tour stopped first at Jack Lindstrom's property to inspect a windbreak planted earlier this year with plastic mulch and drip tape. The second stop was on land owned by Lloyd Erickson, where a subsurface drip irrigation system is installed to more efficiently irrigate his corn crop. Marcia Trompke, CNPP&ID Conservation Director, explained how the drip system is used, and shared some of her data on center pivot water application uniformity. The group's third stop was at Mosaic, formerly known as the Bethphage Mission. Work has already been done to restore the wetland area adjacent to the Mission. A fishing pond and other handicapped accessible recreation features for residents as well as local people to enjoy are in the planning stages.

The fourth stop on the tour was North Dry Creek, where cattail control and IPA maintenance were discussed. From there the group ventured on to the Peterson Ranch, where participants learned about new and dangerous invasive plants along the Platte River. Salt cedar and purple loosestrife were examined. The sixth and final stop on the tour was Carroll Bernt's farm. Carroll showed the group his innovative idea of planting a hay meadow to Bermuda grass.

Several points of interest were also noted along the way, including: the Pamela Sandy restored wetland, a 5-year-old windbreak owned by Lloyd Erickson, and the marker for the site of the first Christian Children's Home.

Check out these web sites:

http://ianrwww.unl.edu/pubs/WATER/g1471.htm	-Decommissioning Wells
http://cari.unl.edu/ne_connects/troubled_waters.html	-Rural Viability
http:// net.unl.edu/ne_connects/troubled_waters.html	-Water Issues in NE
http://waterdata.usgs.gov/ne/nwis/rt	-Daily Streamflow Conditions
http://www.agry.purdue.edu/turf/pubs/agry_00.01.htm	-Lawn Drought Survival

CALENDAR OF EVENTS

(All meetings are at NRD office in Phelps County Ag Center unless otherwise noted.)

October

October 13 - Columbus Day (office closed)
October 14 - NRD Board Meeting at 7:30 p.m.*

November

November 10 - Veterans Day (office closed)
November 11 - NRD Board Meeting at 7:30 p.m.*
November 27 - Thanksgiving holiday (office closed)
November 28 - Office closed in observance of Thanks-giving

December

December 9 - NRD Board Meeting at 7:30 p.m. *
December 25 - Office closed in observance of Christ mas

*** Times are tentative**

WATER CONSERVATION TIP

- Never pour water down the drain when there may be another use for it, such as watering a plant or garden, or for cleaning around your home.

TRI-BASIN TOPICS Is a publication of the
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A mailing list is maintained and requests to be placed on the list should be sent to the above address. Comments and suggestions may be addressed to the General Manager.

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*Highlights of Tri-Basin Tour
*Water Thieves on the Platte!

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